DOCUMENT RESUME

ED 260 769 JC 850 482

AUTHOR Green, Elizabeth G.; Yates, Laura H.
TITLE Utilization of Skills in the Care of the Adult with Common, Well-Defined Health Deviations II (NS 227): Competency-Based Course Syllabus.
INSTITUTION Chattanooga State Technical Community Coll., TN. Nursing Div.
PUB DATE [85]
NOTE 76p.; For other course syllabi in Chattanooga State Technical Community College's Associate Degree Nursing Curriculum, see JC 850 476-484.
PUB TYPE Guides - Classroom Use - Materials (For Learner) (051)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Community Colleges; Course Content; Course Descriptions; *Course Objectives; *Diseases; Heart Disorders; *Nursing; *Nursing Education; Two Year Colleges

ABSTRACT

"Utilization of Skills in the Care of the Adult with Common, Well-Defined Health Deviations II" (NS 227) is an associate degree nursing course offered at Chattanooga State Technical Community College to help students implement increasingly complex nursing strategies and develop new competencies related to patients with cardiovascular, respiratory, neurological, and urinary deviations. The course syllabus for NS 227 begins with information on class, laboratory, and credit hours; prerequisites; textbooks; week-by-week course content; course competencies; evaluation criteria; and curriculum coding. The bulk of the syllabus presents competencies, assignments, information sheets, and questions keyed to the textbook for each of the five course units. The units focus on: (1) adaptive needs for sensory stimulation and related health deviations; (2) care of the patient with deviations of the cardiovascular subsystem; (3) care of the patient with deviations of the respiratory subsystem; (4) care of the patient with deviations of the neurological subsystem; and (5) care of the patient with deviations of the urinary subsystem. Finally, a clinical behaviors evaluation form related to course units is presented. (LAL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED260769

UTILIZATION OF SKILLS IN THE CARE OF THE ADULT WITH COMMON, WELL-DEFINED HEALTH DEVIATIONS II (NS 227): COMPETENCY-BASED COURSE SYLLABUS

Elizabeth G. Green

Laura H. Yates

Faculty of the Nursing Division

Chattanooga State Technical Community College

4501 Amnicola Highway

Chattanooga, Tennessee 37406

JC 850 482

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

X Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

T. G. WELLS

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

COURSE SYLLABUS

UTILIZATION OF SKILLS IN THE CARE OF THE ADULT WITH COMMON, WELL-DEFINED HEALTH DEVIATIONS II

NS 227

CLASS HOURS: 4 CREDIT HOURS: 7
LABORATORY HOURS: 9

CATALOG COURSE DESCRIPTION

This course builds on the content introduced in NS 217. Students implement increasingly complex nursing strategies and develop new competencies related to the care of patients with common, well-defined health deviations of the cardiovascular, respiratory, neuro, and urinary subsystems. Concepts associated with the adaptative need for sensoristasis are introduced and related to stressors encountered in the critical care setting. Students continue to gain experience in applying the five roles of the Associate degree nurse through the care of individual patients including those with health deviations requiring care in an intensive care setting. Through study and use of verbal and nonverbal assertive behaviors, students learn to function in the role of patient advocate more effectively. Special assignments involving community-based health service agencies lead to knowledge of resources for patient referral and further develop the roles of communicator and member within the profession of nursing.

ENTRY LEVEL STANDARDS:

PREREQUISITE(S) (AND/OR CO-REQUISITES): NS 217
Proof of CPR certification
(within last six months)

TEXTBOOK(S) AND OTHER REFERENCE MATERIALS BASIC TO THE COURSE:

1. Phipps, W., Long, B., and Woods, N., MEDICAL SURGICAL NURSING: CONCEPTS AND CLINICAL PRACTICE. St. Louis: C. V. Mosby., 1983.
2. Gahart, Betty L., INTRAVENOUS MEDICATIONS, 4th Edition, St. Louis: C. V. Mosby., 1985.
3. Carpenito, Lynda Juall, HANDBOOK OF NURSING DIAGNOSIS, Philadelphia: J. B. Lippincott, 1984.

I. WEEK/UNIT/TOPIC BASIS:

A systematic and orderly list of activities and/or events that will comprise the total alloted time for the course. The activities, whether based on weeks, units, or topics, should correspond to the number of weeks in the quarter.

COURSE CONTENT:

Week	Unit	Topic
1	I	Adaptive Needs for Sensory Stimulation and Related Health Deviations
	II	Care of the Patient with Deviations of the Cardio-Vascular Subsystem, Part II
2	II	Cardiovascular, continued
3	TEST UNITS I+II	
	III	Care of the Patient with Deviations of the Respiratory Subsystem
	III	Respiratory, continued
4	III	Respiratory, continued
5	III	Respiratory, continued
	IV	Care of the Patient with Deviations of the Neuro-logical Subsystem
6	TEST, UNIT III	
	IV	Neurological, continued
	IV	Neurological, continued
7	IV	Neurological, continued
8	IV	Neurological, continued
9	TEST, UNIT IV	
	V	Care of the Patient with Deviations of the Urinary Subsystem, Part I
	V	Urinary, continued
10	V	Urinary, continued
11	COMPREHENSIVE FINAL EXAMINATION	

II. INSTRUCTIONAL COMPETENCIES:

Upon completion of this course, the student will be able to:

1,4	45.	Implement nursing strategies to maintain, promote, or restore sensoristasis in patients with common, well-defined health deviations.
1-5	46.	Demonstrate increased proficiency in implementing the five roles of the associate degree nurse and the decision-making process in the delivery of nursing care to patients with common, well-defined health deviations of the cardiovascular, respiratory, neuro, and urinary subsystem.
4	47.	Design a nursing care plan for the patient with common, well-defined health deviations of the cardiovascular, respiratory, neuro, or urinary subsystems focusing on modifications or revisions of the care plan when indicated.
1-5	48.	Implement the five roles of the associate degree nurse and the decision-making process in the supervised care of individual patients in the critical care setting.
3	49.	Develop teaching-learning strategies which include the patient's significant others.
2	50.	Demonstrate the role of communicator by functioning as a patient advocate utilizing assertive verbal and nonverbal behaviors.
2,4,5	51.	Describe health services provided by community agencies and the role of the Associate Degree nurse in identifying and referring patients in the secondary care setting who can benefit from these services.

III. SPECIFIC EVALUATION PROCESS WHEREBY THE ACHIEVEMENT WILL BE MEASURED:

A. Testing procedures:

1. Quizzes on assigned readings, medication problems, etc. (short answer, matching, true/false).
2. Three (3) unit examinations (objective, short answers, discussion).
3. One (1) comprehensive final (objective, short answer).

An academic average of 70% on the unit examinations, and final examination COMBINED is required for progression to NS 239.

B. Laboratory Expectations:

A student must receive a "safe" evaluation in the clinical setting for progression. An "unsafe" evaluation will result in the student being unable to progress regardless of the academic average.

C. Field Work:

1. Completion of two (2) care plans, one of which is to be done on an assigned patient in the critical care setting.
2. Completion of an oral and written report on a community-based health service agency.
3. Completion of a self-study on the role of patient-advocate incorporating assertive verbal and nonverbal communication skills.
4. Completion of an assessment guide and medication cards on each assigned patient in the clinical area.*

*Assessment guides and medication cards will be graded on a satisfactory/unsatisfactory gasis.

D. Other evaluation methods (off-campus evaluation processes, standardized testing, etc.): none

E. Calculation of the Final Grade:

Average of Unit Examinations (3)	40%
Final Examination	25%

*The student must have an average of 70% or above on the unit examinations and final examination COMBINED to progress to NS 239.

Quizzes	10%
Care Plans (2)	15%
Written Report on Community Agency	5%
Patient Advocate Study	5%

F. Grading Scale

90 - 100%	= A
80 - 89 %	= B
70 - 79 %	= C
65 - 69 %	= D
below 65%	= F

LEGEND FOR CURRICULUM CODING

I. Content threads are coded superiorly while Process threads are coded inferiorly.

Content Threads	Process Threads
o Adaptation	Teaching-Learning
Safety	Communication
Growth and Development	Nursing
Nutrition	Management
Pharmacology	
Subsystems	
Pathophysiology	

II. Course Competencies are referenced back to program goals as evidenced by numbers in the left margin.

Unit and Weekly Objectives are referenced back to cumulative Course Competencies as evidenced by numbers in the left margin.

NS 227 - Utilization of Skills in the Care of Patients with Common, Well-Defined Health Deviations II

UNIT I

Adaptative Needs for Sensory Stimulation and Related Health Deviations

A. Vocabulary

1,45 ●■ 1) Define the terms on pg 900 in Kozier and Erb.

B. States of Awareness

45 □ ● 1) Identify the following stages of awareness and consciousness:

alert
lethargic
obtunded
stuporous
semi-comatose
comatose

C. Sensory Perception

45 □ 1) Identify structural and physiological elements of the sensory-perceptual process.

D. Sensory Deviations

3,45 □ 1) Identify causes and clinical signs of the three following kinds of sensory disturbance:

a) sensory deprivation
b) sensory overload
c) sensory deficit

45 ● 2) Identify patients susceptible to sensory disturbances and list data to obtain in the health history.

10,45 ● 3) Identify nursing diagnoses related to sensory deviations.

45 ● 4) Identify appropriate goals, nursing strategies, and outcome criteria for promotion of optimal sensory stimulation in patients with diagnoses of:

a) sensory-perceptual overload
b) sensory-perceptual deprivation
c) sensory deficit

Read: Kozier & Erb, pp. 899-910.

UNIT II

CARE OF THE PATIENT WITH DEVIATIONS OF THE CARDIOVASCULAR SUBSYSTEM

A. Cardiac Arrhythmias

3, 39, 46

1) List the subjective and objective data gathered on assessment of a patient with a cardiac arrhythmia.

46

2) Identify the following cardiac arrhythmias:

atrial fibrillation
premature ventricular contractions (PVC's)
ventricular tachycardia
ventricular fibrillation
conduction problems

46

3) Discuss nursing strategies for administration of antiarrhythmic drugs.

46

4) Compare indications and strategies for use of a temporary and permanent cardiac pacemaker.

16, 46, 49

5) Formulate a teaching plan for a patient and significant other with a permanent pacemaker.

Read: Phipps, Long and Wood - pp. 1065-1080.

View: VT 752 Caring for your patient with a permanent pacemaker

B. Cardiac Surgery

46 1) Explain the types of cardiac diseases which are treated surgically including the respective procedure:

coronary artery disease
valvular disease
congenital cardiac disorders

46 2) Write a plan of care for a patient undergoing cardiac surgery including the preoperative stage, immediate postoperative stage and rehabilitative stage.

46 3) Discuss the common complications following cardiac surgery and relate these to the pathophysiology and treatment of each.

46 4) Prioritize the critical steps for effective resuscitation following cardiopulmonary arrest.

46 5) Describe the common emergency drugs (purpose, administration, dosage, side effects):

a. epinephrine
b. atropine
c. calcium chloride
d. lidocaine
e. sodium bicarbonate
f. metaraminol bitartrate (Aramine)
g. dopamine (Intropin)

16,46,49 6) List the discharge criteria and special teaching plans for the patient/significant other following cardiac surgery.

46 7) Discuss special monitoring devices utilized for the patient whose cardiac output is compromised:

Swan Ganz catheter (pulmonary wedge pressure) and intra-aortic balloon pump.

Read: Phipps, Long, Woods - pp. 1085-1097.

UNIT III

Care of the Patient with Deviations of the Respiratory Subsystem

A. Vocabulary

46 ☐★ ■●

1) Define the following terms related to the assessment of the respiratory subsystem:

Cyanosis
Tachypnea
Bradypnea
Hyperpnea
Inspection
Palpation
Assessory muscles
Nasal flaring
Tactile Fremitus
Percussion
Auscultation
Vesicular breath sounds
Bronchovesicular breath sounds
Bronchial breath sounds
Adventitious sounds
Rales
Rhonchi
Wheezes
Chest film
Fluoroscopy
Bronchogram
Thorocentesis
Pulmonary angiography
T.V., C.R.V., RV,
I.C., F.R.C., V.C., T.L.C.
pH, pCO_2, pO_2, HCO_3

B. Anatomy and Physiology of the Respiratory Subsystem

46

1) Review the following aspects of respiratory function:

a) structure and function
b) mechanism of ventilation
c) control of respiration
d) gas exchange

Unit III - continued

C. Assessment

3,46 ☆ □ ●

1) Discuss the following aspects of nursing assessment of the respiratory subsystem:

a) subjective data
b) inspection, palpation, percussion, and auscultation
c) three types of normal breath sounds---vesicular, bronchovesicular, and bronchial
d) adventitious sounds: rales, rhonchi, and wheezes

D. Diagnostic Tests

3,46, 47 □ ●

1) Describe the following diagnostic tests including nursing strategies or responsibilities related to each:

a) chest films
b) fluoroscopy
c) bronchography
d) pulmonary angiography
e) sputum exam
f) gastric washing
g) bronchoscopy
h) lung scan
i) thoracentesis

3,46 □ ●

2) Describe the following ventilatory volumes and lung capacities used in pulmonary function testing and give their normal values:

a) tidal volume
b) inspiratory reserve volume
c) residual volume
d) inspiratory capacity
e) functional residual capacity
f) vital capacity
g) total lung capacity

3,46 □ ●

3) State the normal ranges of parameters used in arterial blood gas analysis:

a) pH
b) pCO_2
c) pO_2
d) HCO_3

Unit III - continued

D. Diagnostic Tests - continued

3, 46 ◘ ●

4) Describe the changes in ABG's seen with: a) respiratory acidosis, b) respiratory alkalosis, and briefly state factors causing these deviations.

Read: Phipps, Long, and Woods - pp. 1215-1225.
Smith and Duell, pp. 566-567

View: VT 1169 Anatomy and Physiology of the Respiratory and Circulatory Systems.
VT 861 Adventitious Breath Sounds.
VT 833 Respiratory Acidosis and Alkalosis (Review).

Unit III - continued

E. Vocabulary

46 □★ ■●

1) Define the following terms:

endotracheal tube
tracheostomy
pneumothorax
hemothorax
paradoxical breathing
flail chest
hypoxia
penetrating chest wound
mediastinal shift
sucking chest wound
spontaneous pneumothorax
atelectasis
pleural effusion
dyspnea
CO_2 narcosis
postural drainage
clapping
vibrating
pursed lip breathing
diaphragmatic breating
incentive spirometer
intermittent positive pressure breathing (IPPB)
pressure cycled ventilator
volume cycled ventilator
intermittent mandatory ventilation (IMV)
visceral pleura
parietal pleura
pleural space
Thoracotomy
Pneumonectomy
lobectomy
segmental resection
wedge resection
Thoracoplasty
chest tube

F. Interferences with Gas Exchange

46 □ ●

1) Describe the necessary components for normal O_2 -CO_2 exchange and list factors which can interfere with each of these (Table 49-1).

Unit III - continued

G. Interventions

46 1) Describe measures utilized to ensure a patent airway including:

a) positioning
b) endotracheal intubation
c) insertion of a tracheostomy tube

46 2) Identify how trauma to the chest such as rib fractures or penetrating chest wounds interfere with respiratory function.

46 3) Outline the emergency treatment of the patient with a penetrating chest wound.

46 4) Describe the emergency treatment of the patient with an open sucking chest wound.

3, 46, 47 5) Describe the etiology, signs and symptoms and treatment of the patient with a pneumothorax.

11, 46, 47 6) Describe nursing strategies related to the following factors or treatments which can be implemented to promote improved gas exchange:

a) special positioning
b) environment (ventilation, humidity, temperature, removal of irritants)
c) pulmonary physiotherapy: postural drainage, clapping, and vibration
d) breathing exercises: pursed lip and diaphragmatic
e) incentive spirometry
f) I. P. P. B.
g) aerosol and mist therapy
h) coughing
i) fluids
j) nasotracheal suctioning
k) oxygen therapy
l) rest
m) nutrition

Unit III - continued

H. Medications

46,47 ▱ 1) Describe the action and desired effect of the following classifications of drugs used to treat cough: (Table 49-3).

a) expectorants
b) anticholinergic agents
c) mucolytic agents
d) antitussives

I. Surgical Interventions

46,47 ●▲ 1) Describe the preoperative nursing strategies related to the care of the patient undergoing chest surgery.

46 ▭ 2) Identify the different types of surgical pulmonary resections.

46,47 ▭ ▱ ● ▲ 3) Discuss the following aspects of routine postoperative care for a patient undergoing thoracic surgery:

a) immediate care
b) coughing and deep breathing
c) pain management
d) nutrition
e) exercises

Read: Phipps, Long, and Woods - pp. 1226-1257.
Hahn, Barkin, and Oestreich - pp. 454-458; 474-479.

UNIT III, Continued

J. Vocabulary

46 1) Define the following terms:

anosmia
rhinitis
allergic rhinitis
coryza
sinusitis
deviated septum
nasal polyps
epistaxis
polypectomy
submucous resection
rhinoplasty, maxillectomy, orbital exteneration
pharyngitis
tonsillitis
tonsillectomy
adenoidectomy
laryngitis
laryngeal edema
laryngectomy
esophageal speech
radical neck dissection

K. Anatomy and Physiology

46 1) Review the anatomy and physiology of the upper airway.

L. Infections of the Nose and Sinuses

3,40 47 1) Describe the etiology, clinical picture, and interventions related to:

a) acute rhinitis (common cold)
b) allergic rhinitis
c) acute sinusitis

M. Epistaxis

46,47 1) Discuss the etiology and interventions related to epistaxis.

Unit III, Continued

N. Surgery on the Nose and Sinuses

46 — 1) Describe the following surgical procedures on the nose :

a) polypectomy
b) submucous resection
c) rhinoplasty

46,47 — 2) List outcome criteria for persons having nasal surgery.

46,47 — 3) Identify nursing interventions for patients having nasal or sinus surgery.

31,46 — 4) Describe surgical procedures related to carcinoma of the maxillary or ethmoid sinuses including possible complications of surgery, maintenance of nutrition, mouth care, and psychological adaptation to change in physical appearance.

O. Deviations of the Lower Tract

3,46 — 1) Describe the symptoms and treatment of acute laryngitis.

46 — 2) Identify the dangers inherent in acute laryngeal edema and describe the treatment of this emergency.

3,46 — 3) Describe squamous cell carcinoma of the larynx including etiologic factors.

3,46 — 4) List the warning signs of cancer of the larynx which indicate the need for medical attention.

46 — 5) Differentiate partial laryngetomy from total laryngectomy.

46,47 — 6) Describe pre and post operative care of the patient undergoing total laryngectomy.

46 — 7) Discuss speech rehabilitation for the patient with a laryngectomy including espohageal speech and use of the electronic artificial larynx.

46,47 — 8) Identify special precautions to be included in discharge teaching of the patient with a laryngectomy.

Unit III, Continued

O. Deviations of the Lower Tract - continued

46 ☐●

9) Describe radical neck dissection and identify its effects on muscle function and body image.

46 • 47 ●

10) List outcome criteria for the person having a laryngectomy or radical neck dissection.

Read: Phipps, Long, and Woods - pp. 1260-1285.
Hahn, Barkin, and Oestreich - pp. 476-477.

Unit III, Continued

P. Vocabulary

46

1) Define the following terms related to Deviations of the Lower Airway:

bronchitis
pneumonia
aspiration pneumonia
tuberculosis
mycobacterium tuberculosis
primary tubercle
caseation
ghon tubercle
PPD (purified protein derivative)
Mantous test
lung abcess
bronch iectasis
empyema
histoplasmosis
coccidioidomycosis
blastomycosis
sarcoidosis
pleural effusion
ARDS (Adult Respiratory Distress Syndrome)
pulmonary embolism
respiratory insufficiency
respiratory failure
PEEP
IMV

Q. Deviations of the Lower Airway

3, 46 -47

1) Describe the etiology, clinical picture and interventions associated with the following deviations:

a) common cold
b) acute bronchitis
c) pneumonia

Unit III, Continued

Q. Deviations of the Lower Airway

3,46 47 — 2) Describe the following aspects related to tuberculosis:

a) etiology
b) pathophysiology (include primary tubercule, caseation, liquification necrosis, cavitation, and formation of the Ghon tubercle [primary complex]).
c) classification
d) prevention and diagnosis (Mantoux test, X Rays, and sputum exams)
e) interventions (include chemotherapy, preventing contamination of air, and psychological adaptation)

3,46, 47 — 3) Describe the etiology, clinical picture and interventions related to empyema.

46,47 — 4) Describe the etiologies, prevention and interventions of the fungal infections, histoplasmosis, coccidiodomycosis and blastomycosis.

46 — 5) Explain the etiology and prevention of the following occupational lung diseases:

a) silicosis
b) black lung disease (pneumoconiosis)
c) asbestosis

3,46 47 — 6) Outline the etiology, clinical picture and interventions related to sarcoidosis.

3,46, 47 — 7) Describe the etiology of lung cancer, its prevention, signs and symptoms and related interventions.

3,46, 47 — 8) Describe the etiology, pathophysiology, and treatment of ARDS.

3,46 47 — 9) Describe the etiology, pathophysiology, clinical picture, intervention, preventive measures associated with pulmonary embolism and pulmonary infarcation.

3,46 47 — 10) Define the etiology, pathophysiology, and clinical picture related to respiratory insuffiency and respiratory failure.

Unit III, Continued

Q. Deviations of the Lower Airway - continued

46,47 11) Describe the following aspects of intervention for the patient in respiratory failure:

a) oxygen
b) airway management
c) rest
d) monitoring
e) mechanical ventilation (including PEEP and weaning with IMV)

Read: Phipps, Long, and Woods, pp. 1288-1333.

View: VT 858 Adult and Respiratory Distress Syndrome I
VT 859 Adult and Respiratory Distress Syndrome II

RESPIRATORY SUBSYSTEM: DIAGNOSTIC TESTS AND NURSING RESPONSIBILITIES

I. BRONCHOGRAPHY (bronchogram): Radiopaque dye introduced to bronchial tree to outline it. X Rays made. Permits evaluation of patency or caliber of tree.
Pt. Prep and Nrsg Resp: Check if sensitive to Iodine (contraindicated if so); remove dental prostheses; keep NPO for 8 hrs before procedure to prevent aspiration; barbiturate given 1 hr prior; pt's throat sprayed with topical anesthetic---observe for toxic reaction. After bronchogram, postural drainage may be ordered. After cough reflex returned, encourage to cough to clear bronchial tree. *Withhold all food and fluids til gag reflex returns! (Check by touching post. pharynx with cotton swab.)

II. Bronchoscopy: Direct inspection and exam of larynx, trachea, and bronchi with fiberoptic or rigid bronchoscope. Permits direct exam of tissues or secretions; allows to locate pathology and perform biopsy for dx, etc. Allows removal of foreign bodies and/or mucous plugs and excision some lesions.
Pt. Prep. and Nrsg. Resp.: Obtain consent; keep NPO 6 hrs before procedure; remove contact lenses, dental prostheses, etc; adm. pre-op meds (atropine and a sedative or narcotic) to sedate and to inhibit vagal stim. Following procedure: keep NPO til cough reflex returns; observe for laryngeal edema (Sx---S.O.B., and stridor) and call Dr. STAT if pres.; if biopsy done, observe for hemorrhage (no smoking as may cause cough and bleeding). Some "streaking" for few days nl.

III. Pulmonary Angiography: Radiopaque dye injected into systemic vein, rt chambers of heart or pulmonary artery. Distribution recorded on film. Permits detection of pul. emboli and/or lesions of pul. vessels.
Nrsg. Resp.: Observe site for sx inflammation or hematoma. Assess distal peripheral pulses and for c/o numbness, tingling, or pain in extremity used for injection.

IV. Sputum Exam: Smear, C + S, and/or cytologic exam (for Ca) may be ordered.
Nrsg. Resp.: Instruct to collect only sputum from deep in lungs (1st sputum raised in am best). Instruct to clear nose and throat and rinse os to ↓ contamination of sputum. Take few deep breaths, then cough (using diaphragm) into wide-mouthed container. (1 cc) If for c + s, collect & start antibiotics. Send to lab immediately.

1-14-85

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227

PHARMACOLOGY RELATED TO RESPIRATORY SYSTEM DISORDERS

A. Bronchodilators

1. General implications for nurses
   a. Administer via correct route (oral, rectal, parenteral, inhalation)
   b. Monitor vital signs for changes
   c. Observe for signs of adequate oxygenation such as warmth and color
   d. Teach the patient the action and side effects of therapy
   e. Observe for side effects
      (1) Dizziness, nervousness
      (2) Gastric irritation
      (3) Palpitations, tachycardia
2. Theophylline derivatives
   a. Actions
      (1) Directly on bronchial smooth muscle, decreasing spasm and relaxing smooth muscle of the vasculature
   b. Example
      (1) Aminophylline, Theophylline
3. Sympathetic amines
   a. Actions
      (1) Act at beta-adrenergic receptors in bronchus to relax smooth muscle and increase respiratory volume
      (2) Inhalants have a local action causing vasoconstriction that reduces congestion or edema
   b. Examples
      (1) Epinephrine hydrochloride (Adrenalin)
      (2) Epinephrine
      (3) Ephedrine sulfate
      (4) Metaproterenol sulfate (Alupent)
      (5) Terbutaline sulfate (Brethine)
      (6) Isoproterenol hydrochloride (Isuprel)

B. Mucolytic agents and expectorants

1. General implications for nurses
   a. Observe for respiratory distress
   b. Have mechanical suction apparatus available in the event the patient is unable to cough up secretions
   c. Wash the patient's face after administration, since stickiness is common
   d. Administer drugs diluted as ordered; do not directly follow expectorants with other fluid intake
   e. Observe the patient for adverse effects
      (1) Nausea
      (2) Skin eruptions
      (3) Jitteriness
   f. Increase fluid intake to loosen secretions
   g. Encourage coughing and deep breathing
2. Mucolytic agents
   a. Action——raise osmolality of bronchial glandular secretions, causing fluid to dilute the secretions
   b. Examples
      (1) Glyceryl guaiacolate (Robitussin)
      (2) Iodinated glycerol (Organidin)
      (3) Potassium iodine (SSKI)
3. Expectorants
   a. Action——increase production of thinner, less viscid secretions that protect bronchial tissues
   b. Examples
      (1) Aetylcysteine (Mucomyst)
      (2) Glyceryl guaiacolate (Guaifenesin, Robitussin)
      (3) Terpin hydrate elixir

C. Antitussives

1. General implications for nurses
   a. Explain side effects to the patiet
   *b. Advise the patient not to take liquids for 15 minutes after administration!
   c. Provide adequate fluids and put the patient in a semi-Fowler or high Fowler position to support respiratory processes
2. Narcotic antitussives
   a. Actions
      (1) Suppress cough reflex by acting on the medullary control center
      (2) Usually employed when cough is not productive
   b. Examples
      (1) Hydrocodone bitartrate (Codone, Dicodid) Codeine Phosphate

3. Nonnarcotic antitussives
    a. Action——inhibit cough reflex at afferent endings of the vagus nerve and at medullary transmission sites
    b. Examples
        (1) Benzonatate (Tessalon)
        (2) Dextromethorphan hydrobromide (Romilar, Sucrets)
4. Antihistaminic cough suppressants
    a. Action——prevent histamine-induced edema, causing irritation of cough-sensitive nerve endings in tracheobronchial structures
    b. Example
        (1) Diphenhydramine hydrochloride (Benadryl)

D. Narcotic Antagonists

1. General implications for nurses
    a. Carefully monitor vital signs, especially respirations
    b. Prepare for emergency resuscitative measures
2. Action——Competes with narcotics for receptors at the respiratory center
3. Examples
    a. Levallorphan tartrate (Lorfan)
    b. Nalorphine hydrochloride (Nalline)
    c. Naloxone hydrochloride (Narcan)

E. Antihistamines

1. General implications for nurses
    a. Caution the patient regarding operating machinery and driving while taking this medication
    b. Advise the patient to report side effects to the physician
    c. If given IM, inject deep to prevent irritation to tissue
    d. Observe for adverse effects
        (1) Inability to concentrate
        (2) Insomnia
        (3) Ataxia
        (4) Tremors
        (5) Headache
        (6) Nausea, anorexia
        (7) Diarrhea
2. Actions
    a. Interfere with histaminic effect by competing for extravascular receptors at arteriole sites
    b. Block histamine-induced irritation of nerve endings, causing itching or burning, dilation of arterioles, and constriction of venules, which leads to transudation of fluid into the tissues
3. Examples
    a. Brompheniramine maleate (Dimetane)
    b. Chlorpheniramine maleate (Chlor-Trimeton, Histaspan, Teldrin)
    c. Benadryl

UNIT IV

CARE OF A PATIENT WITH DEVIATIONS OF THE NEUROLOGY SUBSYSTEM

A. NEUROANATOMY AND NEUROPHYSIOLOGY

46 1) Discuss the anatomy and physiology of the nervous system.

46 2) Define the following terminology related to neuroanatomy and neurophysiology:

neuron	dominant hemisphere
axon	Broca's area
dendrite	Wernicke's area
central nervous system	basal ganglia
peripheral nervous system	thalamus
reflex	hypothalamus
motor systems pathway	medulla
sensory systems pathway	conducting arteries
myelin	Circle of Willis
synapse	meninges
cerebrum	dura mater
brain stem	arachnoid
cerebellum	pia mater
cortex (frontal, parietal, temporal, occipital)	extrapyramidal tracts

3, 46 3) Identify subjective and objective data collected in a neurological assessment including cranial nerve function.

46 4) Explain the procedure and nursing strategies indicated for each of the following diagnostic tests:

Cranial nerve function
cerebral arteriogram
CAT (computed tomography) scan
electroencephalogram (EEG)
electromyogram (EMG)
lumbar puncture
cerebrospinal fluid
myelogram

Read: Phipps, Long, Woods - pp. 713-745.

View: VT 846 Physical assessment: the nervous system
VT 857 Introduction to clinical uses of CT scanning

B. INCREASED INTRACRANIAL PRESSURE, INTRACRANIAL SURGERY

46,47

1) Describe the etiology and clinical manifestations of increased intracranial pressure. (P,L,W 753-758)

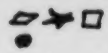
46,47, 48

2) Compare the pathophysiology and treatment of increased intracranial pressure in the following deviations:

   a. infections of CNS
   b. trauma
   c. neoplasms
   d. hemorrhage

46

3) Differentiate in the interventions necessary for the patient undergoing intracranial surgery for neoplasm, trauma, and hemorrhage. (P,L,W - pp. 773-779, 804-807, 830-834)

46,47, 48 

4) Summarize various strategies employed for reduction or prevention of increased intracranial pressure.

46,47

5) Describe the common neurological infections and specific strategies utilized (abscess, meningitis, encephalitis, Guilliam Barré syndrome). (P,L,W - pp. 807-811)

46,47

6) Differentiate in the various types of head injury and subsequent clinical manifestations. (P,L,W - pp. 811-816)

Read: Phipps, Long, Woods - pp. 753-58, 773-79, 804-816, 830-834

View: VT 1197 Cranial trauma: surgical management - signs of change
VT 1159 Hypothermia
VT 1131 Head trauma

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227 UNIT IV - HEAD INJURY

1. Define the following terms by including characteristics of clinical manifestations, pathophysiology of each, outcome:

   a. concussion
   b. contusion
   c. epidural hematoma
   d. subdural hematoma
   e. intracerebral hematoma

2. Differentiate between a subdural and epidural hematoma.

3. With an expanding lesion (after a head injury), what parameters of the neurological assessment will change first?

4. Identify the meaning of the following terms related to a concussion or head injury:
   1) coup
   2) contrecoup

5. How is hematoma usually diagnosed?

6. Is a skull fracture usually present above?

7. A patient has come into ER with a concussion. After being examined, he is dismissed to go home. Discuss the teaching you should include prior to dismissal. Include s/s of neurological deterioration; medications to give or not give, long term problems which may occur weeks post-injury.

8. What is ONE way that many head injuries can be prevented by you/your significant others?

SUGGESTED REFERENCES:

(1) Bailey, J. "Head Trauma---assessments - matter of life & death." RN, May 79, 44 +
(2) Meyd, C. J., "Acute Trauma", AJN, Jan. 78, 40-44.
(3) Schultz, M. K. "Head Trauma: What must be done when all else fails". RN, May 79, 52-54.

C. SEIZURE DISORDERS

46 — 1) Differentiate between the following types of seizure disorders:

grand mal
petit mal
psychomotor
focal and Jacksonian
status epilepticus

13,46,47 — 2) Name the parameters that are included in assessment of a patient during a seizure.

46,47 — 3) Designate immediate care of a patient having a grand mal seizure or other types of seizures.

46,47 — 4) Identify the pharmacological agents utilized in treatment of seizure disorders and the nursing strategies.

16,46,49 — 5) Using the teaching-learning process write a teaching plan for a patient (and/or his family) with a seizure disorder.

46 — 6) Explain the psychological and sociological adaptations necessary for the patient with a seizure disorder.

Read: Phipps, Long, Woods - pp. 780-786

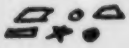
View: VT 853 Introduction to seizure disorders
VT 836 Nursing care in seizure disorders

D. DEGENERATIVE AND CRANIAL NERVE DISORDERS

46,47

1) Compare the etiology, pathophysiology and clinical manifestations of the neurological degenerative disorders:

   Parkinson's disease
   Multiple sclerosis
   Mysathenia gravis
   amyotrophic lateral sclerosis (Lou Gehrig's disease)

46,47 

2) Identify specific strategies for management of the degenerative disorders of the nervous system.

46,47

3) Describe the two cranial nerve deviations, Bell's palsy and trigeminal neuralgia.

46,47

4) Relate the pathophysiology and strategies employed for the patient with Bell's palsy and trigeminal neuralgia including surgical and pharmacological treatment.

46,47

5) List the long-term complications which occur with each of the degenerative and cranial nerve disorders.

Read: Phipps, Long, Woods - pp. 787-795

E. SPINAL CORD INJURY AND VERTEBRAL PROBLEMS

46 1) Relate the neurological deficits to the level of injury following damage to the spinal cord (either through trauma or disease).

46 2) Define the immediate, intermediate and late stages of spinal cord injury (SCI) with appropriate intervention.

3, 46, 47, 48 3) Specify the critical neurological assessments the nurse must make during the immediate stage following SCI.

46 4) Formulate a plan of care for a patient with SCI including the following components:

a. skin care and personal hygiene
b. nutritional and feeding adaptations
c. respiratory care
d. bowel and bladder elimination
e. mobility
f. sexuality

51 5) Explain the necessary support for the patient's (and family) psychological and sociological subsystems following SCI.

51 6) List community agencies which promote rehabilitation for the patient and his family after SCI.

46 7) Relate the pathophysiology of degenerative joint disease of the spine and herniated disk.

46 8) Describe the relationship of the level of damage or deterioration to the neurological deficits manifested.

46 9) Explain the preventative and restorative management in intervertebral disorders.

464 10) Compare the conservative (non-surgical) with surgical and chemical modes of therapy for intervertebral disorders.

15, 46, 47, 48, 49, 51 11) Formulate a teaching plan for prevention of progression of intervertebral damage to be used by the patient and significant other.

Read: Phipps, Long, Woods - pp. 817-827, 834-835, 993-995

View: VT 1167 Spinal cord injury

F. HEALTH CARE DEVIATIONS OF SPECIAL SENSES

EYE

46 1) Discuss the anatomy of the eye and the physiology of vision.

3;46 2) List objective and subjective data obtained in assessment of the patient with health deviations associated with the eye and its structures.

46 3) Define the following terminology:

visual acuity	cyclopegics
ocular refraction	laser beam
Snellen chart	legal blindness (criteria)
ophthalmologist/oculist	pupillary reflexes: direct light
optometrist	consensual
optician	accomodation
ocular fundus	ocular movements
mydriatics	Social Security Act 1952

46 4) Compare cause, symptoms and strategies for management for the patient with the following common eye disorders:

infections
strabismus
cataracts
gluacoma
retinal problems

46 5) Write a plan of care for a patient undergoing eye surgery, including both the preoperative and postoperative phases.

46 6) Discuss specific adaptations of the psychological and social subsystems needed for a person with a visual handicap.

46,51 7) Name the available aids and community agencies which promote independence for the person who is visually handicapped.

Read: Phipps, Long, Woods - pp. 838-846; 859-872; 885-903.

G. HEALTH DEVIATIONS OF SPECIAL SENSES: EAR

46 1) Describe the anatomy of the ear and the physiology of the hearing process.

46 2) Define the following terminology:

hearing acuity	electrocochleography
hearing threshold	impedance audiometry
hearing aid (criteria for use)	speech audiometry
audiometry	Weber test
hertz (Hz)	Rinne test
frequency	conductive hearing loss
pitch	sensorineural hearing loss
decibels	

46 3) Summarize objective and subjective data gathered when assessing an individual's hearing acuity and/or problems associated with the inner ear.

46 4) List the most common causes of hearing loss and respective preventive measures.

46 5) Name the drugs which are ototoxic (refer to Phipps,et al, p. 873).

46 6) Compare concisely the following problems of the ear as to cause, pathophysiology and strategies for restoration of function:

otitis media
perforated eardrum
mastoiditis
otosclerosis
presbycusis
Meniere's disease
labyrinthitis

46,51 7) Summarize the services provided by community agencies available for persons with a hearing loss.

8) Discuss psychological and sociological adaptations related to hearing loss.

Read: Phipps, Long and Woods, pp. 848-857, 872-882, 902-912.

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227

UNIT IV - SPECIAL SENSES: DISORDERS OF THE EYE

I. TERMINOLOGY:

a. EMMETROPIA: normal optical condition with parallel rays coming to focus on retina
b. HYPEROPIA (FARSIGHTEDNESS): Parallel light rays reaching eye come to focus behind retina---vision better for distant objects than near ones
c. MYOPIA (NEARSIGHTEDNESS): Rays of light entering eye parallel to optic axis are brought to focus in FRONT of retina (eyeball too long from front to back). Vision better for near objects than distant.
d. REFRACTIVE ERROR: defective vision occurs because light rays not focused correctly on retina
e. LEGAL BLINDLESS:
   1. Visual field no greater than 20 degrees (normal 180 degrees)
   2. Central distance vision in BETTER eye 20/200 or worse with corrective lenses. (Sees at 20 ft what normal eye sees at 200 ft)
f. Symbols, abbreviations:
   OD = oculus dexter (right eye, RE)
   OS = oculus sinister (left eye, LE)
   OU = oculi uterque (both eyes)
   EOM = extraocular muscles
   gtt(s) = gutta, guttae (drop, drops)
   IOP = intraocular pressure

II. BLINDNESS IN U.S.:
1 million legally blind
1.5 million - need corrective lenses to read newspaper size print

Causes: CHILDREN - strabismus, accidents, infections

ADULTS - cataracts, glaucoma, retinal detachment, diabetic retinopathy, accidents, infections

III. ORGANIZATIONS FOR ASSISTING PERSONS WITH VISION LOSS OR PREVENTION OF VISION LOSS (p. 871):

a. American Foundation for Blind (voluntary)
   Catalogs of aids, books, records, tapes, sewing, kitchen
   Assistance in improving
b. National Society for Prevention of Blindness (voluntary)
   Teaches eye safety through community programs
   Initiates safety measures for industry, recreation
   Lobbies for legislation affecting eye safety
c. Vocational Rehabilitation (governmental)
   Financial assistance for living arrangements
   Mobility training
   Financial assistance for retraining
d. Recording for the Blind (voluntary)
   Educational books, "talking" books
e. Social Security Act of 1952
   Entitles blind person to financial assistance
f. IRS
   Extra tax deduction for legally blind
g. Veterans Administration
   Financial assistance to blind

IV. SPECIAL ASSISTIVE DEVICES, LITERATURE:

a. Special glasses, devices for NEAR-blindness
   1. Telescopic eyeglasses
   2. Magnifying glasses
   3. Portable electronic magnifying system
      Display screen shows bright, magnified image of text from use of hand-held special camera (Brunner, p. 1255)
b. Books, newspapers, magazines
   Braille or large print available in variety of newspapers, journals, classic and current books, Bible
c. Tapes, "talking" books, records and players available through loan program (free) to anyone legally blind from non-profit organization or government programs
d. Mobility Aids
   1. Guide dogs (or dog guides) 1% blind population
   2. Long, lightweight cane - cheapest, most common
   3. Flashlight eye sonar device - emits ultrasound waves up to 4 yards ⟶ sound transmitted
   4. Sonic guide - flashlight converts sound into different pitches
   5. Laser cane - buzzer sounds when objects are within certain distance

I. Eye Safety and Care

a. Eyestrain
   1. Myth: "Eyestrain will damage eyes"

      Eyestrain is fatigue from difficulty in accomodation but will not cause permanent damage.
   2. Adequate lighting and rest periods prevent fatigue of eyes.

b. Cleanliness
   Always wash hands prior to touching eyes or instilling eye medication.

c. Eye Safety
   1. Slingshots, BB guns, fireworks, spitwads, etc. can cause permanent eye injury.
   2. Goggles, safety glasses should be worn with dangerous sports or jobs, i.e., mowing, welding.

d. OTC Drugs
   1. Avoid using eyedrops which contain phenylephrine hydrochloride (causes dilation → precipitate acute angle glaucoma in susceptible person).
   2. Boric acid solution crystallizes and can damage eye.

e. Medications, Ointments
   1. Do not use someone else's prescriptions
   2. Throw away after being opened 3 months
   3. Don't use if cloudy, particles present
   4. Corticosteroids are for short term use only; can cause glaucoma.
   5. Never use medications from one patient to another

f. Warning Signs → Seek Medical Help
   1. Persistent redness
   2. Persistent tearing, discharge, crusting
   3. Continued discomfort after injury
   4. Blurred vision, spots, halos
   5. Pupil irregularities
   6. Crossing of eyes, deviation of either eye

II. First Aid for Injuries

a. Need Immediate Medical Care
   1. Acid, alkali or irritant in eye
      Wash with water for minimum of 15 minutes
      Lab, work areas with irritating solutions should be equipped with irrigating fountains
   2. Foreign Object Lodged in Cornea
      Must be removed by physician
      Do not attempt to remove. Cover eye for protection with paper cone or cup. Do not apply even slight pressure
      Pressure → loss of aqueos humor → iris prolapse → blindness
   3. Laceration of Eye-Do Not Apply Pressure
      Cover and lie still. Get immediate help
   4. Eyelid Laceration Should be Repaired by Opthalmologist; Scarring can irritate cornea
   5. Burns of Cornea from Sunlamp → Cold Compresses

Assessment of Visual Acuity

I. Development and Significant Changes

Age	Vision Meters	Feet
2 mos	6/120	20/400
6 mos	6/60	20/200
1 year	6/30	20/100
2 years	6/18	20/60
3 years	6/9	20/30
4-5 years	6/6	20/20

5 years-Color recognition
School age-Visual maturity develops
Adolescent-Normal vision well established
Middle age (42-45) Onset presbyopia which is gradual loss of accomodation. Unable to see near objects clearly due to elasticity of lens

II. External Structure
Prominence or bulging
Eyelids-Drooping, swelling, redness, discharge
Conjunctiva-Lower, upper lids
Sclera-Dilated blood vessels → disease cornea or within eye small hemorrhages-normal
Lacrimal gland-Palpate for patency
Observe in inner canthus
Cornea- Normally invisible
Should reflect smoothness
Move light across to look for abrasions, opacities
Iris- Color, pattern, size, shape
Lens-Clear, transparent
Opaqueness-cataract (Starts as small opaque circle)

III. Pupillary Reflex CN II, III
Direct and consensual reflexes (Review)
Blind eye-No direct pupil reflex
Normal eye-Shine light into; blind eye reacts

IV. Visual Acuity
a. Should be checked at ages 5-6, 10-11, 13, 16, and then q2 yrs
1. Snellen chart-most widely used
Numerator=distance person is from chart
Denominator=distance at which smallest number can be read
Normal vision permits reading the 20 ft. line at 20 ft. away-20/20 vision
Uppermost letter on chart can be read by normal eye at 200 ft.

V. Ocular Refraction
Retinoscopy used to direct light through pupil to observe light rays as they reflect on retina-Cytoplegic drug to dilate and paralyze
Cyclo

VI. Ocular Movements (Extra-ocular movements EOM)
Asseses CN III, IV, VI
Tests synchronous movement in 8 different positions and straight ahead

VII. Ocular Fundus
Ophthalmoscope magnifies view of back of eye, optic nerve, retina, blood vessels, nerves
Slit lamp microscope-fluoresein dye used to make structures more visible

VIII. Intraocular Pressure
Tonometer measures intraocular pressure
Schiøtz tonometer most common
Several new types of tonometers and slit lamp tonometer used
Normal intraocular pressure 10-21 mm Hg. > 24 mm Hg indicative of glaucoma

MORE COMPLEX ASSESSMENT

IX. Electroretinography-measures electrical potential of retina. Used to dx retinal, choroid diseases
X. Echo-ophthalmography-echo or ultrasound for ocular or orbital growths
XI. Fluorescein Angiography-dye injected into antecubital vein for angiography retinal vessels (Urine very yellow-2 days)

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227 - UNIT V - SPECIAL SENSES: DISORDERS OF EAR

I. Terminology:
SOUND: form of energy generated by vibrating source
INTENSITY: pressure exerted by sound measured in decibels (DB)
LOUDNESS: sensation experienced by person to the intensity of sound. COMFORTABLE range to person with normal hearing 40-56 db
FREQUENCY: number of sound waves emanating from source per second. Expressed in hertz H2
PITCH: normal hearing child and young adult 20-20,000 H2
most sensitive 50-4000 H2
TRANSMISSION OF SOUND: a. air conduction - sound waves pass through ear canal to ossicular chain to inner ear
b. sound waves transmitted through bones of skull
HEARING LOSS: a. CONDUCTIVE - any interference with conduction of sound impulses through ext. auditory canal, eardrum, middle ear. Causes: impacted cerumen, foreign body, scarring, retracting, thickening or perforation of eardrum, fixation of stapes c otosclerosis (Responds better to surgical treatment then sensorineural deafness.)
b. SENSORINEURAL HEARING LOSS caused by disease, trauma of inner ear or its neural pathways. Causes: arteriosclerosis, infectious diseases, exposure to noise of high intensity, presbycusis CLASSIFICATION HEARING LOSS (under audiometry)

II. Assessment of Ear
A. INSPECTION - use penlight or gooseneck lamp if available (hands are free to position ear)
1. auricle and ear canal
2. position of ear - pinna (upper tip) should be on a line with corner of eye and occipital protuberance at back of head
3. Examine adult's ears by tipping head to side; auricle pulled up, back and out. Examine infant/child ears by holding auricle DOWN.
4. Assess for wax, discharge, swelling, obstruction, foreign bodies, redness
5. Assess posterior crevices for redness, scratches, nodules, masses
B. OTOSCOPE - Dilates and straightens canal. Use largest speculum ear will accommodate (hard plastic must be cleaned between each patient or disposable light plastic) Otoscope magnifies tympanic membrane. Can see bulging, redness, perforation

C. AUDIOMETRY - audiogram printout. Examines ability to hear sounds and distinguish speech sounds
Hearing threshold - lowest intensity sound heard
CLASSIFICATION OF HEARING LOSS
Decibel Loss

0-20 db normal
20-50 db mild
50-69 db moderate
70-89 db severe
> 90 db profound

D. IMPEDANCE AUDIOMETRY - tests presence of abnormality of conductive mechanism of middle ear. Measures muscle reflex measurement in response to sound.

E. SPEECH AUDIOMETRY - tests hearing and understanding of speech. Repeat bisyllabic and monosyllabic words after hearing them and must correctly repeat 50% each.

F. ELECTROCOCHLEOGRAPHY - evoked response audiometry which tests hearing function controlled by brain

G. HEARING ACUITY
   a. gross hearing acuity
      whispering or watch ticking
   b. Weber conductive hearing loss
      Sound better in AFFECTED ear
      (normal ear picks up sounds in room)
      shows sensorineural loss
   c. Rinne Test - tests conductive or sensorineural loss.
      Activated tuning form held in front of ear; placed on mastoid process

H. Electronystagmography (ENG)
Measures nystagmus which is associated with inner ear dysfunction and vertigo
Records position and movement of eyeball

I. Caloric Test - cold or warm water irrigated into ear canal.
Normal response is nystagmus. Labyrinth stimulated —— causes dizziness and nystagmus —— [at times]
If NO response, iced water used to attempt to evoke response.
Denotes labyrinthine function is present - DETERMINES INNER EAR OR BRAIN DYSFUNCTION

III. Safety, Prevention of Ear Problems and Progression of Disorders

A. Hygiene and general care

Wash ear with washcloth over fingertip. Do not put anything into ear farther than can be visualized.

Cotton applicators should NOT be used for cleaning deep into ear canal.

Cotton wisps may cling to ear and remain in canal; cause irriation, infection.

B. Infection - NEED EARLY TREATMENT

1. Special observation for ear infections after mumps, measles or meningitis, viral infections, colds
2. Prevent viral diseases (especially rubella) in pregnancy; may cause infant to have hearing loss

Prematurity and anoxia --- infant with hearing loss

Safety, Etc.

3. TRAUMA
   a. Avoid blows to head! (such as boxing, ANYTHING preventable)
   b. Teach children not to put ANYTHING in ears
4. OTOXIC DRUGS (Review list p 873)

   Many antibiotics in MYCIN GROUP

   Other commonly used drugs are Lasix and Aspirin

   Be aware of ototoxicity when administering drugs

   Check for patient complaints of hearing loss, ringing in ears (tinnitus)
5. NOISE POLLUTION

   A leading cause of hearing loss is occupational exposure to high intensity sounds

---

Cochlear damage if noise levels > 85-90 db's over period of months to years. Degeneration of Organ of Corti from noise exposure.

Wear earplugs or ear protectors for occupational noise exposure (rivet hammers, jets, rock bands)

IV. Communicative and Psychological Aspects of Hearing Loss

1. Isolation, feels "he's a burden, in the way". Silent world is very lonely.
2. Lack of ability to communicate because of loss of hearing and no alternate communication methods.
3. BEHAVIOR may indicate feelings of paranoia, irritability, isolation, dominating conversation, denial of problem, may speak too loudly (See chart on behaviors, p.).
4. Communication with someone who has hearing loss
   a. Get attention by raising hand or signaling loss, touch GENTLY
   b. Have room well lighted so person can read lips
   c. Speak clearly; do not overaccentuate
   d. Don't smile while talking or cover mouth
   e. Rephrase words if can't be understood
   f. Write proper nouns, names, etc. medications

V. Rehabilitation

Many agencies, schools available

Goals: 1. Improve communication ability
2. Help person utilize all residual hearing

Rehabilitation includes:
speech (lip reading)
speech therapy
sign language

Hearing Aids - fit as early as possible if child - harder to adapt for older person
aid amplifies sound - does not correct hearing loss
costly but may find community agency which will assist

Chattanooga: Speech and Hearing Center (located at Siskin's Rehabilitation Center)
White Oak Elementary - special classes for hearing impaired
Chattanooga State - hearing impaired program
Interpreters available for students in many schools

VI. Problems of Ear

A. Otitis Media - most common 2 types - serous and purulent

1. Serus: sterile serum collects in middle ear
occurs freq with allergy
can cause retraction of eardrum and conduction deafness

2. Purulent - acute inflammatory process
common in infants because of short straight Eustachian tube. Usually follows cold or other infections (measles, scarlet fever).
Other causes: contaminated swimming water, blowing nose forcefully
Need immediate treatment with antibiotics.
May need MYRINGOTOMY if eardrum to prevent spontaneous rupture. (Read about myringotomy and care.)

B. Acute Mastoiditis - ACUTE INFECTION of mastoid process usually occurs after middle ear infection. Can be life threatening because of osteomyelitis and sepsis. Surgical intervention necessary to remove bone if this occurs. (Can cause osteomyelitis)

S/S: Usually follows UNTREATED or INADEQUATELY treated middle ear infection. Pain, tenderness behind ear, discharge from ear, swelling of mastoid

Rx: Hospitalized for IV antibiotics, aggressive treatment

No hearing loss from mastoiditis.

C. Otosclerois

Progressive condition: normal bone of bony labyrinth replaced with highly vascular, spongy bone. Footplate of STAPES becomes fixed and immobilized. Hereditary cause common; women higher incidence.

S/S: Gradual hearing loss between puberty and age 30

Rx: Surg. treatment. STAPEDECTOMY - Prosthesis implanted for stapes
FENESTRATION - new window created

D. Middle Ear Surgery (page 909) Review immediate care

OUTCOME CRITERIA: Teaching includes

1. No bending, lifting
2. No blowing nose, or sniffing, or blow c both nostrils open
3. Avoid water in ears
4. AVOID FLYING for six months
5. Prevent URI's
6. Follow-up medical care

E. Meniere's Disease

Inner ear disorder; can progress to total deafness. More common in women; onset age 50-60. Increased endolymphatic fluid circulaton in cochlea; pressure affects hair cells.

S/S: Vertigo recurs at intervals, tinnitus and progressive deafness in affected ear. May progress for years. Sudden motion causes severe vertigo, N & V. Attack very disabling. Must hold still to prevent attack. Hearing loss ONE side with 90%.

Treatment: No treatment entirely successfull
Fluid intake, Na restriction (and sometimes ammonium chloride restriction).
Diuretics, antivertigo drugs, histamine to desensitize. Frequent drug changes.

Review: Surg. treatment, outcome criteria

4-03-85

NS 227

UNIT V

Care of the Patient with Deviations of the Urinary Subsystem, Part I

A. Vocabulary

46

1) Define the following terms related to the structure, function, and assessment of the urinary subsystem:

nephron
glomerular filtrate
glomerular filtration rate
erythropoietin
renin-angiotensin-aldosterone system
dysuria
frequency
urgency
nocturia
hesitancy
urinary incontinence
polyuria
oliguria
anuria
retention of urine
hematuria
clean catch specimen
residual urine
creatinine clearance test
serum creatinine
blood urea nitrogen
specific gravity
cystoscopy
retrograde pyelography
KUB (kidney, urethra, bladder)
IVP (intravenous pyelography)

B. Anatomy and Physiology of the Urinary Subsystem. (Review.)

46

1) Name the major regulatory functions of the kidney.

2) Describe the structure of the kidneys.

3) Explain how the kidneys maintain:

a) fluid balance
b) electrolyte balance
c) acid-base balance

NS 227

Unit V - continued

46 B. Anatomy and Physiology of the Urinary Subsystem. (Review.) - continued

4) Explain the function of the kidneys in the excretion of metabolic wastes and drugs.

5) Explain the role of erythropoietin in the production of RBC's.

6) Explain how the renin-angiotensin-aldosterone system of the kidney functions in the maintenance of systemic B.P.

C. Assessment of Urinary Function

3,46 47 □★ ● 1) List subjective data to be collected in the assessment of urinary function.

3,46 47 □★ ● 2) List objective data to be collected in the assessment of urinary function including the following:

a) relationship of urinary output to fluid intake
b) normal character of urine
c) urinalysis (nl and abnl findings):

color
clarity
pH
specific gravity
protein
sugar
ketones
RBC
WBC
casts

46 ● ▲ 3) Describe nursing responsibilities related to the following:

a) collection of a clean catch urine specimen
b) collection of a 24 hour urine specimen
c) collection of a clean catch or catheterized urine specimen for culture
d) measurement of residual urine

3,46 □ ● 4) Explain how the following tests are used to evaluate kidney function:

a) creatine clearance*
b) serum creatinine*
c) blood urea nitrogen (BUN)*
d) serum electrolytes
e) plasma proteins
f) specific gravity*
* - state normal values

NS 227

Unit V - continued

C. Assessment of Urinary Function - continued

3, 46 5) Describe what cystoscopy is and list 3 potential complications following this procedure.

3, 46 6) Describe retrograde pyelography and KUB radiography.

3, 46, 47 7) Describe what an IVP is including potential risks and nursing responsibilities.

3, 46 8) Explain the following tests:

a) CT scan of urinary system
b) renography
c) renal angiography (include potential dangers)
d) ultrasonography
e) renal biopsy (include nursing strategies related to potential for hemorrhage)

Read: Phipps, Long, Woods - pp. 1502-1519.
Smith and Duell - pp. 405-408.

View: VT 1135 - Anatomy and Physiology of the Urinary and Reproductive System.

NS 227

Unit V - continued

D. Vocabulary

46 1) Define the following terms related to deviations of the kidney:

prerenal disease
postrenal disease
glomerulonephritis
nephrotic syndrome (nephrosis)
pyelonephritis
hypertensive renal disease (nephrosclerosis)
polycystic kidney disease
renal failure
acute renal failure
renal insufficiency
chronic renal failure

E. Physiology of Renal Deviation

46 1) Relate alterations of kidney function to one of the major structural parts of the kidney (Table 62-4 on pg 1563).

46 2) Classify renal disease by prerenal, renal, and post-renal causes. (Table 62-5, pg 1564).

F. Deviations of the Kidney

3, 46, 47 1) Compare and contrast acute and chronic glomerulonephritis in relation to the following aspects:

etiology
pathophysiology
prevention
clinical picture
intervention
maintenance of fluid balance
long-term care

NS 227

Unit V - Continued

F. Deviations of the Kidney - continued

3,46, 47 — 2) Identify the etiology, pathophysiology, clinical picture, interventions, and outcome criteria related to nephrotic syndrome (naphrosis).

3, 46, 47 — 3) Identify the etiology, pathophysiology, prevention, clinical picture, intervention, and outcome criteria related to the person with:

a) pyelonephritis
b) hypertensive renal disease
c) polycystic kidney disease

3, 46, 47 — 4) Describe the following factors in regard to acute renal failure:

a) pathophysiology
b) etiology
c) prevention
d) clinical picture

Read: Phipps, Long, Woods - pp. 1563-1572.

Stark, J. How to succeed against acute renal failure. Nursing 82, July, 26-33. (On reserve.)

NS 227

Unit V - continued

F. Deviations of the Kidney, continued

36,46, 47 — 5) List interventions associated with the following to be utilized in the oliguric phase of acute renal failure:

a) metabolic waste buildup
b) regulation of electrolytes
c) control of fluids
d) maintenance of nutrition
e) prevention of injury
f) promotion of comfort
g) psychological adaptation
h) outcome criteria

46,47 — 6) List interventions and outcome criteria related to the diuretic phase of acute renal failure.

3, 46 — 7) Describe the following factors related to chronic renal failure:

a) etiology
b) pathophysiology
c) prevention
d) clinical picture

44, 46, 47 — 8) List interventions related to the following aspects of chronic renal failure:

a) fluid balance
b) electrolyte balance
c) metabolic waste buildup
d) oxygen transport to cells
e) comfort, rest, and sleep
f) safety
g) changes in life-style
h) medications
i) outcome criteria

46,47 — 9) Describe interventions for the person dying of renal failure.

Read: Phipps, Long, Woods - pp. 1572-1584.

View: VT 755 - Care of the Patient in Chronic Renal Failure (On Reserve)

NS 227

Unit V - continued

G. Vocabulary

46 1) Define the following terms related to renal dialysis:

dialysis
diffusion
osmosis
ultrafiltration
hemodialysis
external shunt
femoral vein catheterization
arteriovenous fistula
peritoneal dialysis
CAPD (continuous ambulatory peritoneal dialysis)

H. Dialysis

46 1) State the purpose of dialysis.

46 2) Describe the following three principles as they relate to dialysis:

a) diffusion
b) osmosis
c) ultrafiltration

46 3) Describe the procedure for hemodialysis including the two common types of venous access (external shunt and arteriovenous shunt).

46,47 4) Identify nursing strategies related to maintaining patency of the shunt or fistula and prevention of infection.

46,47,48 5) Describe nursing strategies related to pre-treatment care of the dialysis patient.

46,47 6) List nursing strategies related to care during and after dialysis.

46,47 7) Describe the following aspects of peritoneal dialysis:

a) what it is
b) how it works
c) care during peritoneal dialysis
d) drainage of fluid
e) prevention of peritonitis
f) outcome criteria

NS 227

Unit V - continued

I. Kidney Transplantation

46	□	1) Describe the need for histocompatibility in the donated kidney in relation to prevention of organ rejection.
46	▱	2) List common immunosuppresive drugs used to prevent organ rejection and identify their side effects.
41,42, 46,47	● ▲	3) Describe pre and postoperative nursing strategies related to renal transplantation surgery.
3,47	□ ▱	4) List signs and symptoms related to organ rejection and drugs used to prevent and treat rejection.
14,46, 47	□ ●	5) Describe the role of the nurse in preventing infection in the immunosuppressed patient.
46,51	●	6) List outcome criteria for the person having a kidney transplant.

Read: Phipps, Long, Woods - pp. 1584-1594.
Smith and Duell - pp. 740-754.

Binkley, L. Keeping up with peritoneal dialysis. AJN, 1984 84 (6), 729-733.(On Reserve)

Reed, S. Giving more than dialysis. Nursing 82, April, 58-63. (On reserve)*

* Hemodialysis

View: VT 1137 Chronic Ambulatory Peritoneal Dialysis
VT 803 Peritoneal Dialysis: The Nurse's Role

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227 - ANATOMY & PHYSIOLOGY OF URINARY SYSTEM

I. Anatomy and Physiology of the Urinary Subsystem

A. Anatomy
1. kidney
a. bilateral retroperitoneal organs
b. lower border extends to third lumbar vertebra
upper border extends to twelfth thoracic vertebra (R. kidney slightly lower)
c. Each kidney has an outer cortical layer and an inner medullary portion.
d. functional unit of kidney is nephron
1. Each nephron composed of a
a. glomerulus - capillary network & Bowman's capsule
b. tubular system - proximal convuluted tubule, descending loop of Henle, ascending limb of Henle, distal convuluted tubule, and the collecting tubule
e. Each kidney has 1 million nephrons
f. Each kidney receives 25% of cardiac (600 ml/min) output
2. Collecting system
a. urine from collecting tubules travels the following route:
1. into larger tubules than form pyramids ⟶
2. via a central duct into renal pelvis ⟶
3. down the ureter ⟶
4. into the bladder and passed via the urethra
3. Vascular Supply
a. Blood flow through nephron:
abdominal aorta ⟶ renal artery ⟶
into progressively smaller arteries ⟶
afferent arteriole ⟶ glomerulus (a capillary network)
efferent arteriole ⟶ peritubular
capillaries (around tubules) ⟶ venules ⟶
progressively larger veins ⟶ renal veins ⟶
inferior vena cava
4. Juxtaglomerular apparatus
a. composed of juxtaglomerular cells and macula densa
1. macula densa - area of epithelial cells located in the distal convuluted tubule where it passes close to afferent arteriole
2. Juxtaglomerular cells - special secretory cells situated between afferent arteriole and macula densa
b. Thought to be source of renin

B. Physiology
1. Regulates fluid volume and composition
a. Blood enters the glomerulus thru afferent arteriole; here it is subject to filtration pressures (Hydrostatic pressures and osmotic pressures) which cause an ultrafiltrate. This filtrate drops through a semipermeable membrane surrounding the glomerulus into Bowman's capsule. Filtrate formed is similar to plasma except lacks RBC's and protein.
b. Process whereby blood enters glomerulus and selectively filtered thru a membrane is called GLOMERULAR FILTRATION.
c. Amounts of glomerular filtrate in a given time period is called glomerular filtration rate (GFR)
1. Average 125 ml/min
d. Approx. 124 ml is reabsorbed by the tubular system and transported into the peritubular capillary system and back into systemic circulation. Process is TUBULAR REABSORPTION.
1. Proximal tubule reabsorbs 85% - 90% of H20 and 80% of NA
e. In addition to reabsorption, the tubules are capable of active transport from the peritubular capillaries to the tubular lumen. Process is TUBULAR SECRETION.
1. H+ secreted in proximal and distal tubule
2. K secretred in distal (also absorbed by tubules)
3. NH3 secreted by distal tubule
f. Concentration and Dilution
a. accomplished in loop of Henle by the countercurrent mechanism and in the distal and collecting tubule of ADH.
1. Countercurrent mechanism
a. descending loop of Henle reabsorbs Na+ and Cl- and loses water to the interstitial space
b. Ascending loop of Henle actively transports Cl- and Na+ out of the tubule. H20 unable to follow since wall of tubule impermeable to H20.
c. Thus, as filtrate descends Loop of Henle becomes more concentrated, and as it ascends Loop of Henle, it becomes more dilute
2. ADH (antidiuretic hormone)
a. Controls the size of pores of the membrane in the distal and collecting tubules
b. ↓ ADH → pores smaller → water cannot get out of tubule → dilute water
c. ↑ ADH → pores larger — water gets out and reabsorbs → concentrate urine
2. Regulates Electrolyte Balance
a. Major conservation site for lytes is proximal convuluted tubule

b. Precise regulation of lytes occurs in distal tubule by reabsorption or secretion

3. Regulation of Acid and Base
   a. Acid state of body
      1. In tubular cells $H_2O + CO_2 \longrightarrow H_2CO_3$ which breaks down into H^+ and HCO_3^-
      2. H^+ is secreted into the urine and lost while tubular cells get a Na^+ in return for lost H^+
      3. The Na^+ in tubular cells joins HCO_3^- to form $NaHCO_3$ and absorbed by blood
      4. H^+ can also join with NH_3 (ammonia) in the tubular lumen and get excreted as NH_4 (ammonium)
   b. Alkalotic state
      1. kidney excretes HCO_3^- in excess of H^+
4. Regulation of Metabolic Wastes and Drugs
   a. Metabolic wastes
      1. most wastes are excreted in the urine
      2. Creatinine is almost 100% passed out of the body in the urine
      3. Urea undergoes small amt. of reabsorption
   b. Drugs
      1. Excretion occurs by filtration at glomerulus and by secretion by the distal tubule
5. Erythropoietin Production

↓ Hgb]
] ⟶ kidney release renal
↓ O_2 saturation]

erythropoietic factor (REF) ⟶ act on [redacted] globulin substrate in plasma ⟶
erythropoietin ⟶ ↑ bone marrow to produce RBC's

6. Blood Pressure Regulation

↓ arterial pressure ⟩
↓ serum Na^+ ⟩ ⟶ J. G. apparatus

secrete renin ⟶ angiotensin I ⟶ converted angiotensin II in the lungs (Powerful vasconstrictor) ⟶ stimulates aldosterone secretion ⟶ ↑ Na^+ absorptio ⟶ ↑ blood volume

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227

DIETARY MODIFICATIONS IN CHRONIC RENAL FAILURE

NUTRIENT INCREASED	RATIONALE FOR INCREASE	DIETARY MODIFICATION
1. caloric requirement-↑ to 35-45 Kcal/kg IBW - total intake 2000-3000 Kcal/day ↑ caloric requirement achieved by CHO.	↑CHO spares protein for tissue synthesis. Limits tissue catabolism. Refine CHO used instead of complex CHO because latter contains low biologic protein	1. add refined sugars (jelly, honey, sugar)
2. Vitamins and minerals-↑needs in pt's met by multivitamin tablets. Vit A NOT included because uremic ind. have ↑ serum Vt. A. levels.	necessary because foods high in vitamins (protein and fruits, breads and milk) are limited. Zinc and thiamine and magnesium - ↑appetite	----------
3. Iron-↑need in pts. Met by oral iron supplement	protein foods are limited; freq blood sampling; formation of erythroprotein impaired	1. Eat food fortified c̄ iron 2. Eat food c̄ Vit C with meat meals
4. Calcium - Oral Calcium supplement usually necessary	As GFR ↓ → phosphorous excretion ↓ so serum phosphorous levels ↑ and serum Ca levels ↓. Meeting need for ↑ dietary Ca not met since foods high in Ca (milk) are ↑ in phosphorous, Na, and pro.	----------

Nutrient Decreased	Rationale for Decrease	Dietary Modifications
1. Phosphorus - ↓ to 800-1200 mg/day. Accomplished by oral drug that sequesters phosphorus in GI tract and prevent its absorption. (Amphojel, Basaljel) Also, by dietary modification	see under Ca	1. Limit dairy products, meats, whole grains, chocolate, and nuts
2. Protein - ↓ in accordance with the ind's GFR at particular time, not recommended until GFR drops to 4-10 ml/min. Limitation 1.-1.5 gm pro/Kg/IBW/day	↓ GFR → buildup of nitrogenous wastes, phosphorus and potassium in the serum	↓ Pro intake ∴ creating tissue catabolism requires high biologic protein (HBV) Contain all 8 essential amino acids. Found in eggs, meat, fish, cheese. Makes up 75% of total pro intake. Low biologic pro (LBV) makes up 25%. Found in bread, cereal, and starchy vegs.
3. Sodium and water - Na intake limited to 40-130 mEq Na/day Fluid intake replaces urine output and insensible loss (500 cc). Dialysis clients allowed 1000 ml / day	GFR<10 ml/min → very little urine or no urine, → inability to excrete Na and fluids → retention or Na and fluid. Clients develop HPN and edema.	See dietary Na restriction lists from CV system
4. Potassium - 40-130 mEq/day	Exogenous K+ consumed plus endogenous K+ during tissue catabolism leads to excessive increase serum K+	1. limit intake of fruits and vegs 2. leach fruits and vegs. 3. limit pro

3-4-85 mp

NS 227

CLINICAL OBJECTIVES

Following completion of the corresponding units in classroom theory, the student will meet the following clinical objectives when assigned to a patient with related health deviations:

SENSORY STIMULATION AND RELATED HEALTH DEVLATIONS

3, 45	●	1. Assess assigned patients for clinical signs of sensory deviation with a special focus on those patients who are susceptible to sensory overload, sensory deprivation, or sensory deficit.
1045	●	2. Establish nursing diagnoses related to the needs of assigned patients for sensoristasis.
5,13, 45,46	●	3. Plan, implement, and evaluate appropriate nursing strategies to promote, maintain, and/or restore sensoristatis.

CARE OF THE PATIENT WITH DEVIATIONS OF THE NEUROLOGICAL SUBSYSTEM

46 *1. Demonstrate an accurate neurological assessment and interpretation of findings on a patient with neurological deficits.

46 *2. Evaluate effectiveness of pharmacological agents utilized with a patient who has increased intracranial pressure.

46 *3. Demonstrate critical safety measures for a patient with neurological deficits.

46 *4. Administer anticonvulsants accurately to assigned patients evaluating effectiveness and side effects.

46 *5. Assess assigned patients with health deviations of the special senses: vision, hearing.

CARE OF THE PATIENT WITH DEVIATIONS OF THE CARDIOVASCULAR SUBSYSTEM

46 *1. Assess assigned patients with cardiac arrhythmias considering subjective and objective data.

46 *2. Utilize cardiac monitoring equipment appropriately.

46 *3. Apply cardiac electrodes accurately on a patient requiring monitoring.

46 *4. Assess assigned patients in the critical care setting performing assessment of all subsystems.

46 *5. Demonstrate appropriate prioritizing of steps in a simulated cardiopulmonary arrest.

46 *6. Administer cardiovascular drugs accurately with adequate preparation prior to giving.

CARE OF THE PATIENT WITH DEVIATIONS OF THE RESPIRATORY SUBSYSTEM

3, 46

1. Assess assigned patients for subjective and objective data related to the upper and lower respiratory subsystem including data from related diagnostic studies and procedures.

10, 36, 46

2. Evaluate arterial blood gas studies and correctly identify states of compensated or uncompensated respiratory acidosis or alkalosis.

10, 46

3. Write nursing diagnoses related to health deviations of the respiratory subsystem.

11, 46

4. Implement appropriate nursing strategies associated with the collection of sputum specimens and with the care of the patient undergoing special diagnostic procedures including bronchoscopy or thoracentesis.

11, 46

5. Implement and evaluate 7 or more of the following nursing strategies to ensure a patent airway and promote gas exchange:

special positioning
environment (ventilation, humidity, temperature, removal of irritants)
pulmonary physiotherapy (clapping, vibration, and postural drainage)
incentive spirometry
coughing
fluids
pharyngeal, nasotracheal, endotracheal suctioning*
tracheostomy care*
oxygen therapy
medication
rest
nutrition
breathing exercises (pursed lip and diaphragmatic)

16, 46, 49

6. Implement and evaluate an appropriate teaching plan to meet the learning needs of the patient with respiratory subsystem deviation including the patient's significant others.

*campus lab skills

CARE OF THE PATIENT WITH DEVIATIONS OF THE RESPIRATORY SUBSYSTEM -- cont'd

11,46, 47	●	*7. Implement the decision-making process (nursing process) in providing care to the patient with chest tubes.
11, 46, 47	●	*8. Implement the decision-making process in providing care to the patient with a respiratory deviation requiring mechanical ventilation.
16, 46, 47	●▲	9. Implement and evaluate appropriate perioperative nursing strategies for the patient requiring chest surgery including teaching strategies to promote and restore function and to prevent post-op complications.
11,46, 47,51	●	10. Refer patients with respiratory subsystem deviations to appropriate community health agencies when indicated.

* Campus lab skills.

CARE OF THE PATIENT WITH DEVIATIONS OF THE URINARY SUBSYSTEM, PART I

3,46, 47	●	1. Assess assigned patients for subjective and objective data related to the urinary subsystem including data from related diagnostic tests.
10,46, 47	●	2. Write nursing diagnoses related to health deviations of the urinary subsystem.
11, 46	▬ ▱ ●	3. Implement, and evaluate appropriate nursing strategies to promote, restore, and maintain urinary subsystem adaptation in the patient with the following health deviations: acute or chronic glomerulonephritis nephrosis pyelonephritis hypertensive renal disease polycystic kidney disease acute or chronic renal failure
16,46, 47,49	● ▲	4. Implement and evaluate a teaching plan to meet the learning needs of the patient with urinary subsystem deviation including the patient's significant others.
11,14, 46,47	○ △ ● ▲	5. Implement and evaluate appropriate nursing strategies for the patient receiving CAPD or hemodialysis with the goals of maintaining patency of the shunt or fistula, preventing infection, and promoting physiologic adaptation to treatment.
11,,46	●	6. Collect (or assist in the collection of) urine specimens for diagnostic purposes using correct procedures for collection and handling.
11,14, 46	△ ●	7. Utilize the decision-making process (nursing process) to identify and/or prevent complications associated with IVP, cystoscopy, renal angiography, and biopsy.
11,46, 47,51	●	8. Refer patients with urinary subsystem deviations to appropriate community health agencies when indicated.

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227

MECHANICAL VENTILATION

I. Definition and Indications:

Use of breathing device to maintain ventilation of lungs automatically for prolonged periods. Indications for use - pg 603, Smith and Duell.

II. Types:

A. Pressure cycled - produce flow of gas that inflates lungs until preset pressure reached and inspiration phase ends.

B. Volume cycled - most widely used type of ventilator. Volume of inspired air to be delivered is preset. Pt receives preset volume of oxygenated air at whatever amt of pressure is required to deliver it (within safe limits). Volume-cycled Positive Pressure Ventilators can be programmed for a variety of functions. You will need to know the following, be able to check them, and to record them in your nurses' notes or flow sheet.

1. Tidal Volume (V_T): Volume of air in a normal breath. (Can be measured on inspiration or expiration.) Pt's ventilator V_T is calculated as 10-15 mg/Kg. (2.2 lbs = 1 Kg)
2. Rate: Number of ventilator breaths delivered per minute (10-15/min.) (Pt. may also have spontaneous respirations in addition to those set by ventilator with IMV mode. Ex: Ventilator may be set to deliver IMV of 8/min.+ Pt. may breath 4 times a min spontaneously = Resp. rate of 12.)
3. FIO_2 : Fraction of inspired O_2, or the O_2 concentration of the gas delivered by the ventilator (21% to 100%). (Room air = 21% O_2.) Gas is warmed to 37°C (body temp) and humidified to prevent mucosal drying and to promote clearance of secretions.
4. Sighs: Optional periodic deep breaths given to prevent atelectasis. Sighs are 1½ to 2 times pt's V_T and are delivered at rate of 10-20/hr.

III. Modes of Ventilation:

A. Controlled Mechanical Ventilation (C.M.V.): Delivers a preset V_T and rate. Supports pt. completely and does not respond to pt's inspiratory efforts. "Breath-stacking" and "fighting" ventilator common due to lack of synchronization with pt's respirations.

III. Modes of Ventilation - Continued

B. Assist-Controlled Ventilation (A.C.V.). Ventilator programmed to sense pt's negative inspiratory effort and to thus cycle and deliver a minimal preset rate and V_T. (Pt. controls rate of breathing while ventilator assures that minimal rate and volume are delivered.)

C. Intermittent Mandatory Ventilation (I.M.V.): Ventilator gives a preset number of breaths of a preset volume while allowing the pt to take breaths at his own rate and volume between the mandatory ventilator breaths. (Newer machines can be set to deliver mandatory breaths in synchrony with pts own breaths by sensing pt's negative inspiratory effort.) (Synchronous IMV = SIMV.)

D. Other:

Positive End Expiratory Pressure (PEEP): Application of positive airway pressure during expiration to prevent collapse of alveoli during expiration. Used when unable to maintain $PaO_2 > 60$ mm Hg with FIO_2 of 50% or greater. By keeping alveoli in open state, improves oxygenation. (↑es functional residual capacity [FRC].) Usually set at +5 to +20 cm H_2O.

Continuous Positive Airway Pressure (C-PAP): Maintains positive pressure on the airway throughout respiratory cycle of sponaneously breathing pts. Benefits similar to PEEP (maintains alveolar patency and improves oxygenation).

From:

Chalikian, J. and Weaver, T. Mechanical ventilation: Where it's at and where it's going. A.J.N., 1984, 84, (11), 1373-1379.

IV. Assessment:

A. General Assessment

1. Assess the level of responsiveness:

   a. Restlessness may indicate early hypoxia.
   b. Drowsiness may signify increasing PCO_2. (Drowsiness may also be due to lack of sleep.)

2. Determine degree of resp. distress. Observe degree of muscle power pt. exerts while breathing.
3. Monitor temp.

   a. High temp increases O_2 consumption
   b. Low temp may cause degree of cardiorespiratory depression or arrhythmia.

B. Assessment of Respiratory Function

1. Check resp. rate and depth. Check symmetry of chest expansion.
2. Note color.
3. Auscultate the chest, checking for good bilateral breath sounds. Note absent or diminished sounds and adventitious sounds.
4. Check ventilator settings: V_T, IMV, FIO_2, Sigh, PEEP. (All ventilator alarms ON!)
5. Note color, quantity, consistency of sputum.
6. Note quality of cough effort in its ability to bring up secretions.
7. Check for visible humidity (mist) to inspired gases. (Low humidity will cause drying of secretions.)
8. Check chest x-ray report.
9. Check lab reports
   a. C. and S. of tracheobronchial secretions q 3 days
   b. WBC and differential
   c. Hb and Hct
10. Monitor ABG's: pH (7.35-7.45), pO_2 (80-100 mm Hg), pCO_2 (35-45 mm Hg), HCO_3^- (22-26 mEq/L). Avoid rapid changes in ABG's. Changes in pH should not be more than 0.1/hr and changes in pCO_2 greater than 10 mm/hr. (Range of pH compatible with life is 6.8-7.8.)

From: Brunner, L. and Suddarth, D. Textbook of medical-surgical nursing. Philadelphia: Lippincott Co., 1984.

V. Nursing Strategies:

A. Be familiar with ventilator, its settings and alarms. (Alarms always should be on!
Double check settings against Dr's orders.

1. High pressure alarm
   - Pt. needs suctioning --> suction.
   - Pt. "fighting" ventilator-possible hypoxia. Check ABG's; consult with physician.
2. Low pressure alarm
   - Pt disconnected --> reconnect.
   - Gross leak --> check tube, trace flow of gas, call R.T. and ambu.

V. Nursing Strategies - continued:

*Keep manual resucitation(ambu) at bedside. Use if power failure or if problem with ventilator and for hyper-oxygenating before and after suctioning. Keep spare airway at bedside or close by.

B. Empty condensed H_2O from ventilator tubing prn (not into humidifier).
C. Support ventilator tubing while turning and positioning pt, making sure enough slack to prevent pulling. Check tapes---R.T. to change if soaked or soiled. Restraints may be necessary to prevent extubation.
D. Suction prn to prevent retention of secretions, infection, and hypoxia.

- Use strict aseptic technique.
- Hyperoxygenate with 100% O_2 before and after suctioning to prevent dangerous hypoxia. Suction no longer than 15 sec at a time. Observe monitor for tachycardia, bradycardia, or ectopic beats during procedure.

E. Check temp of inspired air as often as necessary. (Should be close to body temp - 37°C.)
F. Turn and pos. q 1-2 h while awake and q 1 hr around clock if comatose. As able, get pt into chair or even help walk for short periods while bagging him or placing on portable ventilator.
G. Test N.G. drainage pH q h and adm. antacids to maintain pH > 5. (Stress ulcers.) Test NG drainage and fecal matter daily for occult blood.
H. Give mouth care to pt with E.T. tube q 2 h using toothettes and H_2O_2 or mouth wash. Inspect mouth and lips for ulceration---may need to reposition E.T. tube. Moistureize dry, cracked lips with lemon glycerine swabs. Suction mouth after tracheal suctioning. (Yankauer device more comfortable than catheter.)
I. Establish communication with pt. Explain to him why he cannot talk. Set up communication system via: felt-tip marker or pencil and pad (clip board nice), magic slate, or alphabet board. Ask "yes" or "no" type questions. Use gestures. Lip read. Include family and friends in planning. Use eye contact. Nurse the patient, not the machine!
J. Allow some control over daily routines. Enhance personal appearance by mouth care, combing hair, etc.
K. Promote security and decrease fear by keeping call bell within reach at all times. Explain purpose of treatments and procedures. Teach relaxation exercises. Use touch, provide back rubs.
L. Plan nursing care to provide periods of uninterrupted sleep.
M. Prevent sensory overload and sensory deprivation. Minimize interruptions, keep noise level low, turn off unnecessary lights at night, provide radio and/or T.V., explain procedures and equipment. Provide clock and calendar. Orient and reorient as necessary. Develop trust and demonstrate personal care and concern.

From: Janoswki, S. Mechanical ventilation: Bringing the patient into focus. A.J.N., 1984, 84 (11), 1384-1388.

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Department

Clinical Behaviors for NS 227

Legend: N/A Not Applicable or Not Observed
1 Consistently Unsafe
2 Consistently Safe
3 Consistently Safe and Able to Adapt Delivery of Nursing Care
* Critical Behavior

I. Role as a Provider of Direct Patient Care

	N/A	1	2	3
A. Assessment				
* 1. Collect data according to established protocol utilizing available resources.				
* 2. Identify and document changes in the patient's state of adaptation.				
* a. Assess and record deviations of the adaptive need for sensoristasis.				
*b. Assess and record the state of adaptation of patients experiencing cardiovascular subsystem health deviations.				
*c. Assess and record the state of adaptation of patients experiencing respiratory subsystem health deviations.				
*d. Assess and record the state of adaptation of patients experiencing neurological subsystem health deviations.				
*e. Assess and record the state of adaptation of patients experiencing urinary subsystem health deviations.				
*f. Assess and record the state of adaptation of patients in a critical care setting.				
B. Analysis				
*1. Establish a nursing diagnosis based on the patient's state of adaptation.				

I. Role as a Provider of Direct Patient Care - Continued

	N/A	1	2	3
C. Planning				
*1. Establish priorities of care based on the nursing diagnosis.				
*2. Set goals and develop objectives in conjunction with the patient or a significant other.				
*3. Develop individualized nursing care plans based upon the nursing diagnosis and identify strategies for implementation according to established protocols.				
D. Implementation				
1. Implement cognitive, psychomotor, and affective nursing strategies to promote, maintain, or restore the patient's optimum steady state of adaptation.				
*a. Implement appropriate strategies to promote, maintain, or restore sensoristasis.				
*b. Implement appropriate strategies for patients with cardiovascular subsystem health deviations.				
*c. Implement appropriate strategies for patients with neurological subsystem health deviations.				
*d. Implement appropriate strategies to promote, maintain, or restore urinary subsystem health deviations.				
*e. Implement appropriate strategies for patients with respiratory subsystem health deviations.				
*f. Implement appropriate strategies for patients in a critical care setting.				
E. Evaluation				
*1. Compare the patient's state of adaptation with previously defined objectives and goals.				
*2. Identify alternate strategies to promote, maintain, or restore the patient's optimum steady state of adaptation, modify the plan of care accordingly, and document changes.				

II. Role as a Communicator

	N/A	1	2	3
*1. Assess verbal and non-verbal communication of patients or significant others including those in the critical care setting.				
*2. Utilize communication skills effectively as a method of data collection, implementation of strategies and evaluation of care.				
*3. Assume the role of patient advocate utilizing assertive communication skills when indicated.				
*4. Establish and maintain effective communication with health team members and evaluate effectiveness of this communication.				
*a. Provide accurate and appropriate verbal reports on the state of adaptation of patients to appropriate team members.				
*b. Chart accurately nursing assessments, diagnoses, strategies, and evaluation of nursing care in patient records.				
5. Use appropriate referral sources in the secondary care setting or community to promote, maintain, or restore an optimal steady state of adaptation.				
*6. Communicate effectively with members of community service agencies to obtain knowledge of services provided, costs, criteria for utilization, and referral processes.				

III. Role as a Patient Teacher

	N/A	1	2	3
*1. Identify situations in which individual patients need information to promote, maintain, or restore the optimum steady state of adaptation.				
*2. Assess the patient's level of development, knowledge, and readiness to learn.				
*3. Develop or adapt short range teaching plans for implementation with individual patients, including the patient's significant others.				
*4. Implement teaching plans with individual patients.				
*5. Evaluate the patient's learning and modify teaching plans accordingly.				

IV. Role as a Planner and Coordinator of Patient Care

* 1. Assess and establish priorities of nursing care including those for the patient in the critical care setting.				
* 2. Implement nursing strategies with individual patients, including those in the critical care setting, reflecting prioritization of patient objectives and strategies to accomplish these.				

V. Role as a Member within the Profession of Nursing

* 1. Demonstrate accountablity for technical nursing practice within the profession's ethical and legal framework.				
* 2. Assess own performance using established criteria.				
* 4. Function dependently consulting a more experienced registered nurse when caring for individual patients who are not within the scope of practice.				
* 5. Assume responsibility for continued learning as a means of growth, development, and maintenance of competencies within the scope of practice.				
* 6. Describe available community health services and the role of the nurse in identifying and referring patients who may benefit from these.				

NS 227
Clinical Behaviors

Safe = A score of 2 on all critical behaviors and an average of 2 for all behaviors.

Unsafe = A score of 1 on any critical behavior or an average of less than 2 for all behaviors.

Comments:

Student Signature	Instructor Signature
Date	Date

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227

PHYSICAL ASSESSMENT
HEAD TO TOE ASSESSMENT

1. Name the four techniques utilized in the physical assessment by the nurse.

2. Identify the purpose of a head-to-toe assessment and the indications for this type of evaluation.

3. List the order in which the nurse proceeds by beginning at the head and ending with the toes (head ---> _____ ---> _____ ---> _____ ---> _____).

4. Specify the four critical areas assessed initially when time does not permit a complete assessment or a change in status indicates a need for this.

5. In assessment of the integumentary system, explain the nursing assessments for each:

   a. pallor
   b. cyanosis
   c. edema
   d. turgor
   e. integrity
   f. color change, e.g. jaundice, urochrome

6. Describe data necessary to collect when evaluating each of these subsystems:

   a. cardiovascular (include monitor)
   b. respiratory
   c. neurological
   d. renal

7. Identify the components of the Glascow Coma Scale.

8. Specify the dangers of evaluating the patient from monitoring devices.

Reading: Phipps, Long, and Woods - pp. 1913-1920; pp. 102-107.

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE
Chattanooga, Tennessee
Nursing Division

NS 227

OBJECTIVES

CHEST TUBES AND CLOSED DRAINAGE SYSTEMS

1. List 3 medical diagnoses which are indications for insertion of chest tubes.

2. Explain the following aspects when chest drainage is initiated:

   a. sites for insertion
   b. supplies, equipment
   c. procedure
   d. dressing and securing the tubes
   e. patient and equipment assessments

3. Describe special considerations with the following:

   a. positioning and transporting the patient
   b. drainage bottle almost full
   c. clamping the tube
   d. "stripping" the tubing
   e. removal of tubes

4. Explain the differences in the 3 closed drainage systems utilizing:

   1 bottle
   2 bottles
   3 bottles
   suction (usual amount)

5. In assessing the patient, list the aspects the nursing assessment includes when chest drainage is being used.

Reading: Phipps, Long and Woods - pp. 1253-1256.

View: VT 861 Adventitious Breath Sounds 25"
VT 842 Water Sealed Chest Drainage 25"

ERIC CLEARINGHOUSE
FOR JUNIOR COLLEGES
OCT 1 8 1985